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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/719,631	02/12/2001	Suzushi Kimura	43890-467	3451

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EXAMINER

DINH, TUAN T

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 04/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/719,631

Applicant(s)

KIMURA ET AL.

Examiner

Tuan T Dinh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-35 is/are pending in the application.
- 4a) Of the above claim(s) 13-30 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 33 is/are allowed.
- 6) ☐ Claim(s) 1, 4, 6-12, 31, 32 and 34 is/are rejected.
- 7) ☒ Claim(s) 5 and 35 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities:

Claim 1, line 4, "penetration holes" should be ~~the~~ penetration holes—for proper antecedent basis.

Claim 1, lines 5-6, and 11, it is confuse because applicant recites in lines 5-6 that "each row and each column...comprising **at least two penetration holes**", and also, line 11 applicant recites "***N and M of aligned rows and columns are equal or greater than 3.***" Therefore, it is impossible to form two penetration holes in a matrix of $N \times M$ in which N and M are equal or greater than 3.

Examiner suggests to applicant in claim 1, lines 5-6 that "at least two penetration holes" should be ~~at least three~~ penetration holes--.

Claim 1, line 7, "a circuit wiring disposed on both sides" should be ~~circuit~~ **wirings** disposed on both sides— because a (one) circuit wiring cannot be disposed on both sides.

Claims 8, 10, 12, and 31-34, "circuit wiring disposed on both sides" should be ~~circuit wirings~~ disposed on both sides-- because a (one) circuit wiring cannot be disposed on both sides.

Please, review all the claims carefully and correct these and any similar error.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 8, 10, 12, 31-32, and 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 8, lines 2 and 10, it is unclear. Applicant recites "a substrate having a penetration hole, and the penetration hole is formed at a position according to a matrix" is not understood. How can "a (one) penetration hole" formed as a matrix? Also, the phrase of "the penetration hole is formed at a position according to a matrix" is not understood, what does applicant mean of "at a position according to a matrix" applicant should clarify this limitation, and what does "the matrix" refer to?

Claims 10, 12, 31, 32, and 34 are rejected under 112, second paragraph, as the same as rejected in claim 8.

Please, review all the claims carefully and correct these and any similar error.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 8 is rejected under 35 U.S.C. 102(e) as being anticipated by Yamashita (U.S. Patent 5,875,100).

Yamashita discloses a module component as shown in figures 1A-1G comprising:

a substrate (20) made of resin having a penetration hole (21), se figure 1A;
circuit wirings (22), see figure 1B, disposed on both sides of said substrate (20),
and

first and second auxiliary substrates (pair of outer layers of insulating layers 30 and wiring patterns 51) see figure 1G disposed such that the substrate is disposed between the auxiliary substrates (pair of outer layers 30, 51),

a chip component (10) disposed in the penetration hole (21), the chip component having a specified height being greater than the depth of the penetration hole and **not projecting** from said first and second auxiliary substrates (outer layers 30, 51), and

said chip component electrically coupling said circuit wiring disposed on the both sides of said substrate.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 4, 6-7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over DiBugnara (US 4,979,076) in view of Horton et al. (US 4,933,808).

DiBugnara discloses a module component (8) as shown in figures 1-4 comprising:

a substrate made of resin (9, column 4, line 27) having a plurality of penetration holes (10-19, column 4, line 39), said plurality of penetration holes (10-19) disposed in said substrate (9) so as to form a matrix of aligned rows and columns of said penetration holes (see figures 1, 2, and 4, the rows and columns are aligned in the matrix form);

circuit wirings (21, 31, see figure 3) disposed on both sides of said substrate, and chip components (40-49, column 4, lines 24-25), each having a height almost the same as a depth of each of said penetration holes (see figure 3), said chip components being disposed in one of said penetration holes, the component further comprising an auxiliary substrate (51; 61) disposed over at least one side of the substrate (9), the auxiliary substrate (51; 61) is meltable (column 6, lines 1-6); therefore, it fills a gap between the component and the penetration hole. Further, the end of the component and the surface of the substrate are different in color because they are of different material.

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DiBugnara does not disclose the N by M matrix of the aligned rows and columns, which are equal or greater than 3.

Horton et al. shows in figures 2-3 that a planar dielectric spacing member (60), see figure 2, having a plurality of carrier apertures (70) in a form of a matrix of at least three aligned rows and columns.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a teaching's Horton et al. in the module component of DiBugnara in order to easily assembling more components, save less time and low cost for manufacturing.

Allowable Subject Matter

9. Claims 8, 10, 12, 31-32, and 34 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

10. Claims 5, and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claim 33 is allowed:

The following is an examiner's statement of reasons for allowance: The references cited in the Office action disclose a substrate, a penetration hole, circuit wirings, a chip component, and an auxiliary substrate. However, they do not disclose or render obvious in combination of a module component having a ground layer disposed

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beneath an auxiliary substrate. Also, there is no suggestion to modify these references to include these limitations.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

11. Applicant's arguments with respect to claims 1, 4-12, and 31-35 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 571-272-1929. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kammie Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan Dinh
April 15, 2004.



David Nelms
Supervisory Patent Examiner
Technology Center 2800